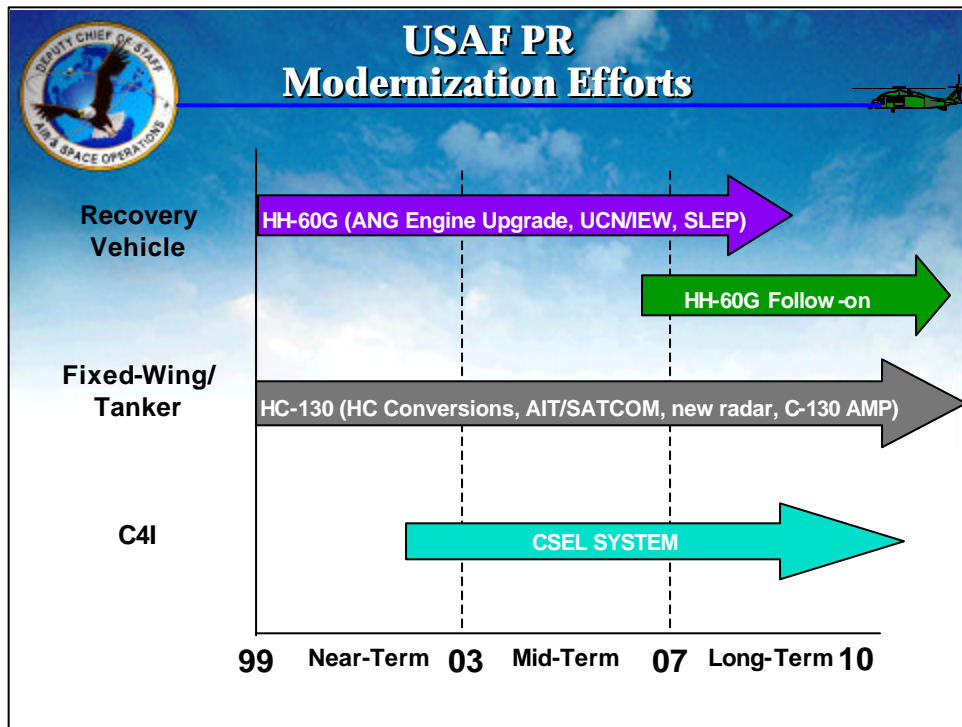




AIR FORCE PR PROGRAMS

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USAF/XOOP
27 Oct 1999***

***This Briefing is
UNCLASSIFIED***



- There are a number of modification programs funded to upgrade the HH-60G and HC-130 CSAR platform.
- ACC has initiated an Analysis of Alternatives to address aging and performance limitations of the HH-60G platform.
- I'll discuss the modifications and the AoA in more detail.



MNS for CSAR Replacement (CAF 315-97)

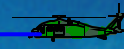


- HH-60G aircraft begin approaching service life limits as early as FY00
- Current force needs /deficiencies:
 - mission react time
 - deployment
 - survivability
 - cabin space
 - battlefield situational awareness
 - tactical adverse weather capability
- Material alternatives:
 - HH-60G Service Life Extension Program (SLEP)
 - HH-60G SLEP and mission enhancements
 - Procure new HH-60G aircraft
 - Procure NDI replacement aircraft
(Sikorsky S-92, CV-22, AFSOC MH-53J, USMC CH-53E, USA MH-47E ...)
 - Develop/procure new replacement aircraft/system
 - Procure cooperative program aircraft
(Canadian EH-101, European NH-90, etc.)
- JROC approved CSAR Replacement MNS on 11 Dec 98
 - DAB approved entry into Concept Exploration phase 4 May 99

- The oldest HH-60Gs are 81/82 models used for training
- In addition to aging, the HH-60G aircraft lack capabilities that will be needed to effectively perform CSAR missions in the future
Key deficiencies include:
 - mission react time/speed
 - deployability
 - survivability
 - cabin size/space
 - battlefield situational awareness
 - adverse weather capability
- The material alternatives that need to be considered range from SLEPing the fleet to procuring new CSAR platforms.
- Material alternatives include:
 - HH-60G **Service Life Extension Program (SLEP)**
 - HH-60G SLEP and mission enhancements
 - Procure new HH-60G aircraft
 - Procure NDI replacement aircraft
(**CV-22, AFSOC MH-53J** (excessed when AFSOC gets CV-22s),
USMC CH-53Es, USA MH-47Es, Sikorsky S-92s, etc.)
 - Develop/procure new replacement aircraft
 - Procure cooperative program aircraft
(Canadian EH-101, European NH-90, etc.)
- JROC approved HH-60G Replacement MNS in Dec 98 Oct 98 and DAB approved CE go-ahead in May 99. AN Analysis of Alternatives was initiated in 4 Q/FY99.



HC Conversion Description



- **Converting 10 C-130E/WC-130Hs to HC-130s to increase active/ARC force structure**

- First HC-130 conversion (Super C-130E) delivery in Dec 99
- WC-130H availability contingent upon WC-130J IOC date

- **Systems to be installed in modification include:**



Air Refueling
Integrated GPS
AIT/SATCOM

ALE-47 Chaff/Flare
Elec. System Upgrade
Personnel Locator Sys.

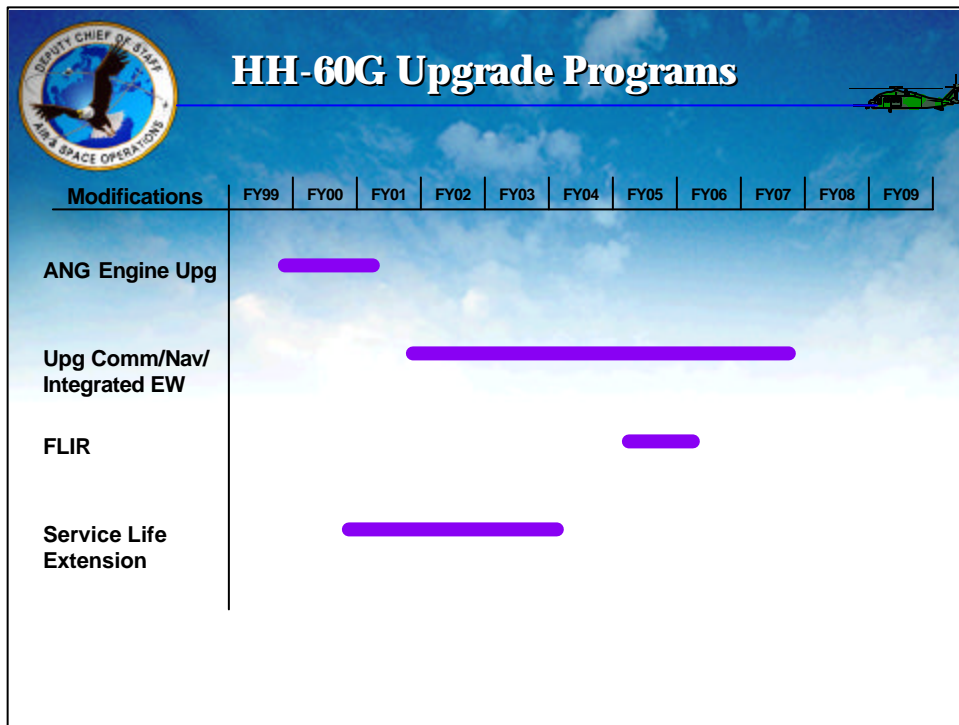
ALR-69 RWR
APN-241 Radar
TCAS/Autopilot

NOTES:

- Current requirement is for 10 HCs with associated funding through FY05.
- WC-130Hs have cargo ramp doors with flares, already carry tanks (structural cost savings in addition to the tanks that are there), have scanner windows, have a weather officer's station that only requires reconfiguring to be a radio operator's station, etc.
- We're installing mods that are currently going on other HCs whenever kits are available
- TCAS and APN-241 are to be installed to provide rendezvous capability and begin the TCAS installs
 - APX-65 is obsolete and increasingly unsupportable
 - 6 HCs at Suffolk NY already have TCAS

<div>  <div>CSEL System</div>  </div>	
Today	2010
<ul style="list-style-type: none"> Inventory 0 Mission Requirements <ul style="list-style-type: none"> A hand held radio that provides 24 hour <ul style="list-style-type: none"> LOS Voice Beacon GPS 2-way data communications LPI/LPD Global Coverage Over-the-Horizon 	<ul style="list-style-type: none"> Inventory Objective 23,450 Mission Requirements Same as today Projected Improvements <ul style="list-style-type: none"> Data exchange with Airborne Rescue forces Commercial Satellite Communications Capability

- Mission requirements as stated in ACC ORD
- Currently taking ORD to the JROC for Joint validation
- Total AF inventory objective is 23,450
 - Army - 18,500
 - Navy - 10,252
- Follow-on improvements - Airborne interrogator and commercial satellite communications capability
 - Can be added on as P3I
 - Currently not funded



Bars depict deliveries.

ANG engine upgrade - replaces -700 engine with -701C , install improved flight controls, and replaces gearbox with an improved durability gearbox with rotor brake. Mod is for 13 ANG aircraft. New engine provides increased power (22%) and improves fuel efficiency (22%).

Comm/Nav/EW upgrade - Current funding will upgrade 49 HH-60Gs to -152 configuration. Provides satellite comm capability, corrects cockpit human factor deficiencies, NVG lighting, and new radios. Adds integrated warfare suite adds a missile warning system, an enhanced radar warning receiver, and automated response to threats. Externally mounts gun and corrects center of gravity problem.

FLIR - adds AN/AAQ-16 FLIRs to 58 HH-60Gs.

SLEP - Extends structural life of 10 oldest HH-60Gs, procured in FY81-82, up to CY2018.



701C Engine Upgrade (ANG)





Replaces -700 engine on 11 ANG HH-60Gs with -701C

- Improved Durability Gear Box (IDGB)
- Provides 22% increase in engine power
- Improves fuel flow efficiency 22 %
- Improved flight controls

10 AFSOC are done

9 AFRC are done 13 ANG in work

NOTE: 90 models and above (52 a/c) come with -701c engines

- Upgrade provides ANG common fleet config. Upgrade
- Procure/install mod kits for 11 A/C
 - T700-GE-701C engines (22)
 - Improved flight controls (11)
 - Improved Durability Gear Boxes (IDGB)
 - Rotor brakes (11 + 2)
- Results
 - Improve A/C power range
 - Increase fleet commonality
 - Increase shaft horsepower
 - Improve Flight controls compliments increased power and torque from engine
 - Rotor brake reduces "idle to shut-down" time
- 3 sites affected
 - Moffett NAS, CA - 6 A/C
 - Gabreski AP, NY - 5 A/C
 - Kulis ANGB, AK - 2 A/C [retrofit rotor brakes only]



UCN/IEW Modification Description



- **Upgrades/integrates communications to provide SATCOM with DAMA, new radios (UHF/VHF/FM), SINGARS, secure voice**
- **Adds Kalman filter to GPS/INS to improve navigation accuracy**
- **Integrated EW suite to include MWS, enhanced RWR, and enhanced chaff and flare dispenser with auto & manual modes**
 - **Bulldog flare system and Self-Protection system (SPS) are being procured as interim fix**
 - **By the end of FY00, fleet will have 22 Bulldog in AD, 15 SPS in AFRC and 8 SPS in AD**
- **NVG compatible lighting and human factors cockpit improvements**

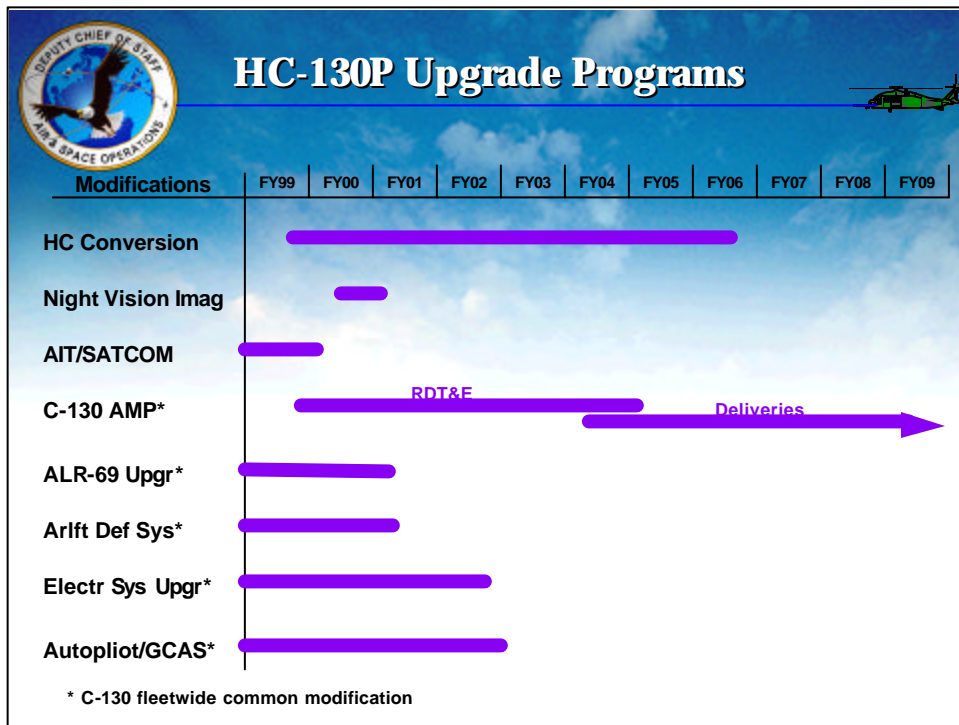
Currently Sikorsky is in development of the next generation PAVEHAWK, the -152 with expected roll-out in early 1999.

An RDT&E contract was awarded in Aug 96 to develop the -152 configuration. Production deliveries of the 152 configuration are scheduled to begin in FY01.

Comm/nav upgrades include upgrade of the existing Control Data Display with an Intel 80486 processor and additional memory, re-host the CDU software to be compatible with the upgraded hardware, provide integrated control of two AN/ARC 210 multi-band radios, a Multimission Advanced Tactical Terminal, integrate the AN/ARC -222 VHF/SINGARS radios, upgrade the ARS - 6 Personnel Locating System (PLS) with Hook - 112 capabilities, install one Emergency/Zeroize Control Panel and upgrade the existing Data Transfer System (DTS) with increased data capacity.

The **Integrated Electronic Warfare (IEW) suite** is to replace the current electronic counter-measures capability with a new integrated capability which will not impact the aircrew workload but will provide improved performance and better identification capability and interface with other detection signals. The IEW suite will consist of an Electronic Warfare Management System, AN/ALQ - 213 EWMS, that controls the AN/ALR - 69 Radar Warning Receiver (RWR), an AN/ALE - 47 Chaff/Flare Dispenser, an AN/AAR - 47 Missile Warning System (MWS), and provisions for an AN/AVRV-2 Laser Detector.

Other upgrades include a Voice Warning System, Cabin Equipment Rack, change in Avionics cooling requirements, rewiring the airframe with new cable harnesses, FLIR Turret relocation, maintenance-free vibration absorbers, APR-69 RWR with Frequency Selective Receiver Systems, relocation of weapons (gun) externally, and increased weapons capability.



Bars depict deliveries. C-130 common mods represent schedule for C-130 fleet (HC-130P schedule not available.)

HC Conversion - Converts 10 C-130E and WC-130 aircraft to combat rescue configuration, (HC-130P) for ACC (5 a/c) and ANG (5 a/c). Total cost \$100M.

NVIS -Night Vision Imaging System for 9 HC-130Ps (8 AFRC, 1 ANG).

AIT/SATCOM - Airborne Integrated Terminal integrates all onboard radios into a common control panel for the radio operator and adds SATCOM.

C-130 AMP - Incorporates Nav Safety, GATM, RM&S upgrades, and other C-130 requirements to upgrade C-130s and provide fleet commonality. \$3.3B program for 390 C-130s completes in FY14. (2 backup slides available)

ALR-69 - Installs ALR-69 RWR on 366 C-130s; warning of AAA, interceptors, and SAMs.

Airlift Defensive System (ADS) - Missile warning receiver and chaff/flare dispensers on 432 C-130s.

Electrical System Upgrade - Flight safety mod to upgrade C-130 electrical power system to provide "clean" reliable power. 459 C-130s.

Autopilot/Ground Collision Avoidance(GCAS) - replaces obsolete autopilot and installs GCAS capability to 629 C-130s.

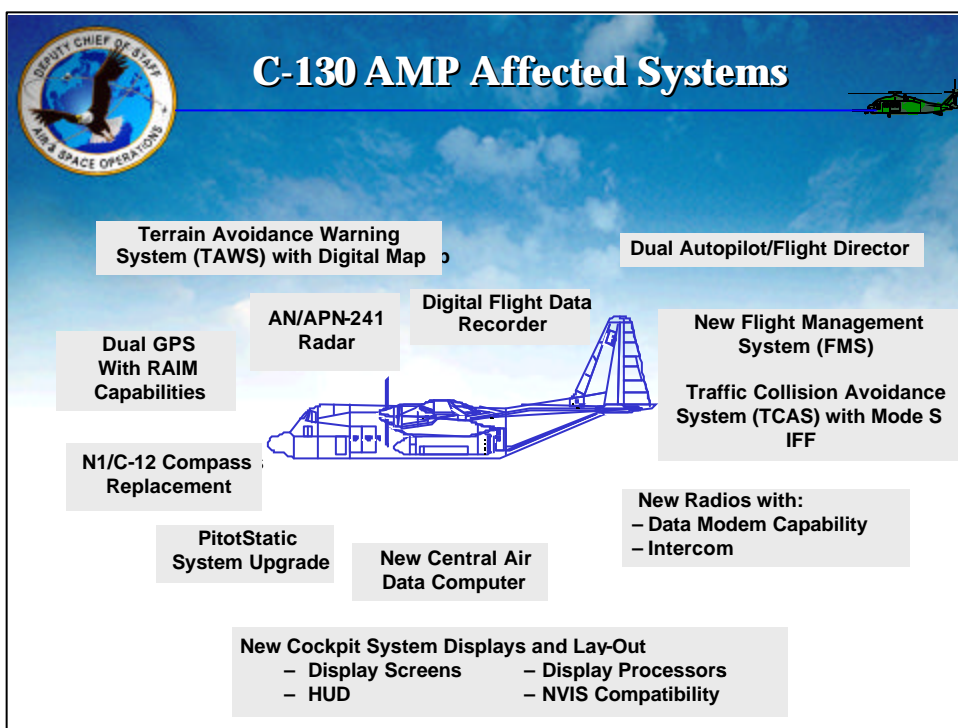



C-130 Avionics Modernization Program

- **HC-130s will be included in the C-130 fleetwide Avionics Modernization Program (AMP)**
 - Modernizes and standardizes the C-130 Avionics Suite
 - Implements Air Force Navigation Safety Master Plan (Nav/Safety) and Global Air Traffic Management (GATM) requirements
 - Enhances reliability, maintainability, sustainability, and interoperability of all C-130s Fleet
 - Current AMP program to modify HC-130s FY04-FY08
- **Out-year tanker conversions may incorporate AMP upgrades into one effort**

Will not reduce the number of Special Mission MDSs.

This modification will incorporate Navigation Safety, GATM, various other RM&S upgrades and C-130 Broad Area Review requirements to include ETCAS, TAWS, APN-59 radar replacement, N-1/C-12 Compass replacement, Dual Autopilot, Dual Flight Management System, and HF/UHF/VHF Datalink.





CSEL Program Issues

<u>Issue</u>	<u>Operational Impact</u>
<ul style="list-style-type: none"> ■ Funding Requirement Increase Due to Technical Issues & New Requirements ■ UHF/VHF Module ■ DAMA ■ DII COE ■ SAASM 	<ul style="list-style-type: none"> ■ Procurement funding converted to RDT&E to complete development ■ Two year deployment delay

PROGRAM IS EXECUTABLE

Program rebaseline (cost and schedule) caused by

- Technical difficulties with the UHF/VHF module in the Hand held radio
- Requirement for increased NSA-approved security
- DAMA
- DII COE
- GPS SAASM

Development of these capabilities understood - awaiting funding to continue

- IOT&E is currently scheduled for 1QFY02; original was Oct 98
- IOC will be in 3QFY02
- Procurement funding must be increased in the FYDP to make up for the reclassification to RDT&E and to attain economic production rates and complete the total buy of 23,450 radios